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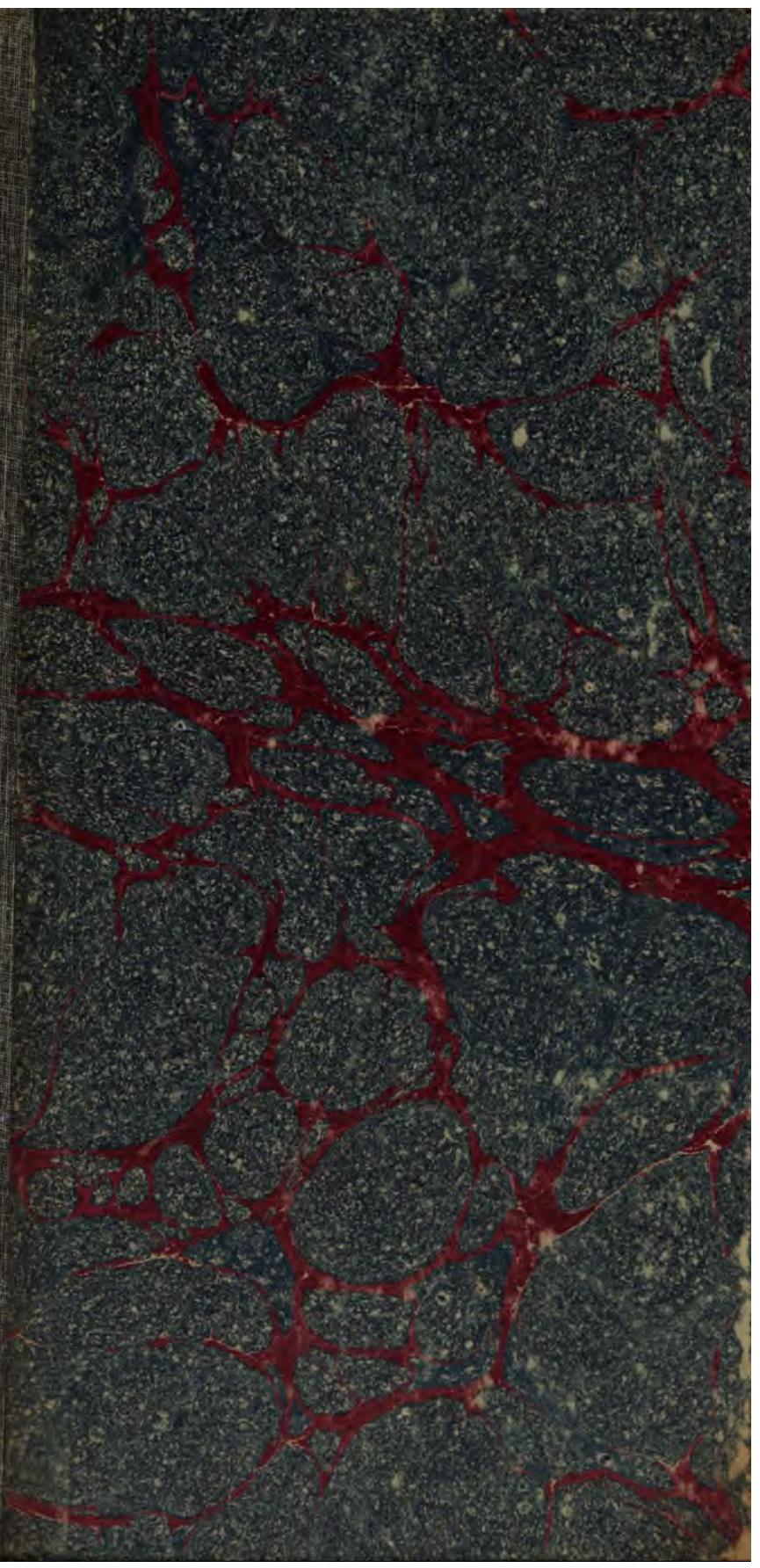
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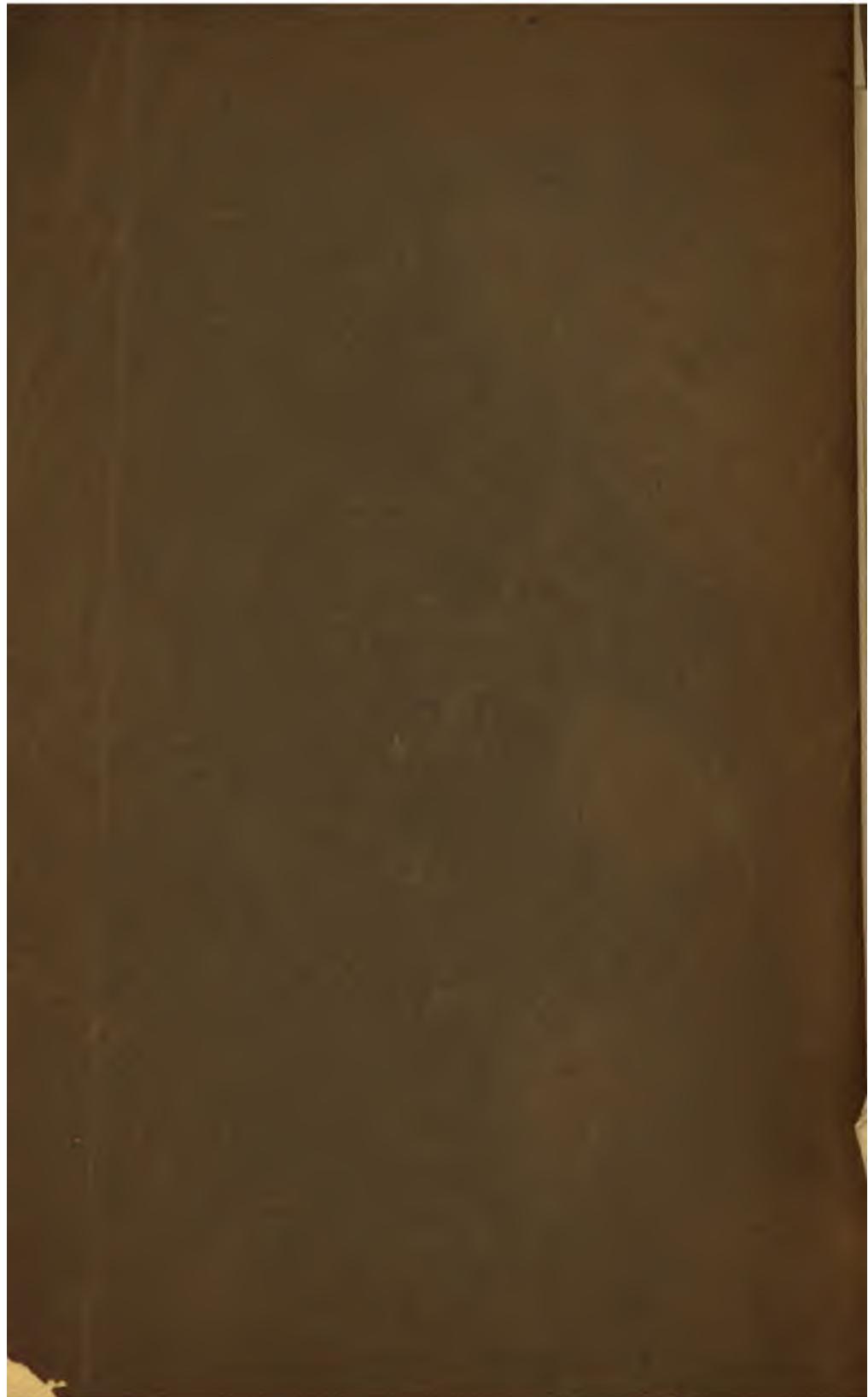




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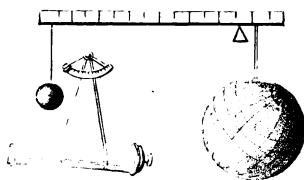


Sir

To my friend
that you propose to publish
able volumes on the
and has offered to contribute
of our Newcastle upon
Memoir which I have
Chinese Translators.

The Author of
"The Pursuit of Knowledge under
Difficulties,"
Library of Entertaining Knowledge
by favour of Mr. John Foster

for a 2 week lead



PULMINA BELLI
PONDUSQ. TERRÆ ESTIMATA

Chas Hutton F.R.S. &c. &c.

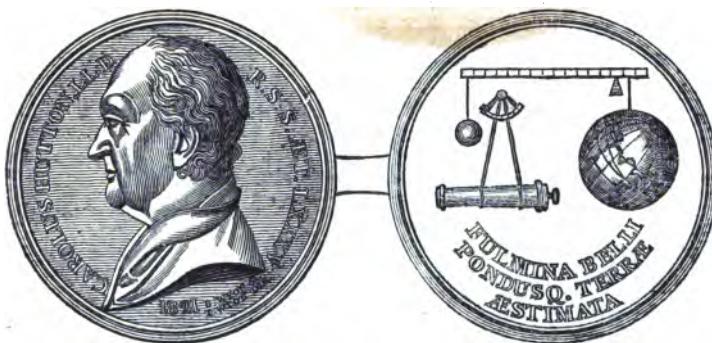
A
Mémoire
OF
CHARLES HUTTON, LL. D. F. R. S.
BY
JOHN BRUCE.

*Read at a Meeting of the Literary and Philosophical Society of
Newcastle upon Tyne, May 6, 1823,*

AND ORDERED TO BE PRINTED.

"SATIUS EST MEIS QUESTIS FLOREBRE QUAM MAJORUM AUCTORITATIBUS INNITI,
ET ITA VIVERE UT SIM POSTERIS MEIS NOBILITATIS INITIUM ET VIRTUTIS EXEMPL-
PLUM."

Cicero.



NEWCASTLE:
PRINTED BY T. AND J. HODGSON, UNION-STREET.

1823.



A
Mémoire
OR
CHARLES HUTTON, LL.D. F.R.S.

IN connecting the name of Dr. Hutton with the subject of this paper, it will be necessary, in order to prevent expectations being raised which will not be gratified, to disclaim the intention of presenting a continued biographical narrative of our celebrated townsman. Supposing that I even possessed abilities for such a task, I have neither sufficient materials for the purpose, nor do I possess sufficient leisure for arranging them in their proper form. And I feel the less desirous to make the attempt, as I know it is in the hands of one every way qualified to do justice to it—of one who has been for more than twenty years the most intimate friend of the subject of the memoir which he is preparing, and for a considerable portion of that time, his fellow-labourer in the work of education—and now his successor in the Royal Military College. It will be immediately seen that I allude to Dr. O. Gregory, whose eminent attainments in the mathematical and philosophical sciences, as well as in the general walks of literature, eminently qualify him for presenting to the world a faithful picture of the abilities and character of our lamented friend. My attempt is of a humbler kind—to present a few

detached events of the life of Dr. H. chiefly as connected with his native town, and especially to represent to this society the great interest, which the Doctor always took in its concerns, and also in the other institutions in this town connected with education. If I am able to do this in a proper manner, I shall feel satisfied, and though I may attempt to form a connecting chain to my narrative, yet that is not my chief object.

In some of the memoirs which have appeared in the public journals, an anxiety has been shown to dignify the Doctor through means of his ancestors, as if he required any borrowed ornaments. Surely no great anxiety needs be exhibited to trace the ancestry of a man, whose great abilities were exerted for between sixty and seventy years in the dissemination of knowledge in his native country, whose writings are in every seminary of education, and with whom the nobles of the land thought it an honour to associate.

It is surely better to allow him to stand upon the firm pedestal which he has formed for himself, than to attempt to exalt him upon a tottering fabric of hollow ancestry, which may fall to the ground. I express myself the more decidedly upon this point, from the personal knowledge I had of the real character of Dr. H. He was sufficiently conscious of his own abilities, and of the rank which he held in society, to make him feel quite at ease, as to what might be said with respect to his origin.

Charles Hutton is said to have been descended from a family in Westmoreland, but he himself was born in Side-gate, now named Percy-street, Newcastle upon Tyne, August the 14th, 1737, and was the

youngest son of Henry and Eleanor Hutton. His father was employed in the coal works in the neighbourhood; and though he is stated in some of the London journals to have been a viewer of collieries, it is evident, if he were a viewer at all, he must have been an under-viewer, who is generally one of the most intelligent of the workmen, employed to superintend the others. He had the misfortune, however, when only five years of age, to lose his father, who, as appears from the register of St. Andrew's church, died in June, 1742. His mother married again, Nov. 13th, 1743,* to a person of the name of Francis Fraim, whose employment was that of an overman in the collieries, and who is said to have proved a kind father to Charles.

When about seven years of age, Charles had the misfortune, in a quarrel with some children in the street, to get the elbow joint of his right arm put out.

Being afraid to tell his parents of the accident, he concealed it from them for some days, and when at last they discovered it, it was too late for any surgical assistance thoroughly to restore it. This was a heavy affliction to his parents, especially to his mother, who lamented that her son Charles would never be able to procure for himself a livelihood. He was accordingly sent to school, whilst his brothers were employed working in the pits. The first school he was sent to, was kept by an old Scotch woman in Percy-street, in a house, that projects into the street close to the turn into Gallowgate; and here

* These and some other dates have been obligingly extracted by the Rev. H. D. Griffith, from the Registers kept in St. Andrew's Church.

he remained till he had read the Bible and Testament two or three times through. This school-mistress, according to the Doctor's account, was no great scholar, as it was her practice, whenever she came to a word, which she could not read herself, to desire the children to skip it, for it was Latin.

Having learnt to read at this school, he went, on his parents removing to Benwell, to a school at a place a little below that village, called Delavel, and here he learned to write—the schoolmaster's name was Robson. He did not remain long here, for his parents shortly after removing to High Heaton, he went to school at Jesmond; and this may be considered the principal place of his education. The school was kept by the Rev. Mr. Ivison, a clergyman of the church of England. How long he was at this school, or in what manner he was otherwise occupied for a few years about this time, cannot now be ascertained. From the circumstance of his having got his arm lamed, and thus being rendered unfit for manual labour, I was inclined to think the common report of his having worked in the pits was incorrect—and that it arose from his brothers having been employed as ordinary pitmen; and I would here observe, that I have had considerable difficulty in tracing this part of his history. Since I had the honour of reading this memoir before the Literary and Philosophical Society, I have had, through the kindness of Mr. Wood, of Killingworth, documents put into my hand, which prove the correctness of the report, that he had been employed in his youth, at least for a short time, as a common workman in the pits.

These documents are two of the pay-bills of Old Long Benton colliery, in which Chas. Hutton's name appears among the hewers, Francis Fraim, his step-father, being overman. The first is headed thus, "Pay ending Sept. the 2d. Fran. Fraim—Rose Pit." The year does not appear on the face of the bill, but on comparing it with the colliery books, Mr. Wood finds it to be 1755. In this bill the name of Chas. Hutton is placed the last among the hewers, and from the small quantity of work (compared with that of the other workmen) standing opposite his name, he seems to have been a very indifferent hewer; the lameness in his arm, rendering him unfit for so laborious an employment.

The other bill is "Pay ending March the 16th, Francis Fraim—Rose Pit." The year, on comparison with the colliery books, is 1756. It appears from this bill that Hutton only worked the three first days of the pay, and his name is not to be found in any subsequent pay-bill. Indeed, we may safely state, that these were the last days he ever worked in the pits. He was now more than eighteen years of age, and we know from other circumstances, that it was about this age he commenced teaching a school.

I do not consider it would be an act of kindness to the memory of Dr. H. to suppress this part of his early history. We know, that the lower any man's origin is, the higher and the more honourable is his subsequent elevation. And here I would observe, although it is anticipating a part of this narrative, that it is perhaps the first time in the annals of British biography, that a person once employed in the situation of a

common workman in a colliery, rendered himself so celebrated, that a Lord Chancellor of England considered it as one of the many blessings which he had enjoyed in life, to have had the benefit of his instructions.

It was on Mr. Ivison's leaving Jesmond, which he did on his being engaged as a curate at Whitburn, that Mr. Hutton entered upon his school. In a short time, his school at Jesmond, increased so much, that his school room became too small, and he removed to a larger room in an old house, called Stote's Hall, at a little distance from Jesmond.

The assiduity with which he applied to his studies at this time was very remarkable. Whilst he taught school at Stote's Hall during the day, he attended, in the evening, at a school in Newcastle, kept by a Mr. James, to prosecute his studies in mathematics, and so careful was he not to lose a moment of time, that he scarcely allowed himself sufficient leisure to take his ordinary meals; and his mother has often been heard to express her fears, that her son would injure his health by too great application. Whilst he was attending the evening school of Mr. James, he formed an acquaintance with Mr. George Anderson, at that time serving his apprenticeship as a bricklayer, and a close intimacy continued between them, during Mr. Hutton's residence in Newcastle.

On Mr. James's declining school, Mr. H. embraced the opportunity of coming into Newcastle, and commenced school in the Flesh Market. In the advertisement, which he published, he boldly professed to teach the whole circle of the mathematical sciences. Some

of his friends, whom he had previously consulted, advised him to be more moderate in his pretensions, lest he should injure himself by being found to have professed more than he was adequate to perform. But, confident in the strength of his powers, he fearlessly published the advertisement; and he had no reason to repent doing so, as appears from the following circumstance.

Mr. Shafto, living in Benwell Hall, having seen this advertisement, sent a card to Mr. H. requesting him to call upon him. Pleased with the interview, he engaged Mr. H. to go to Benwell in the evening, or at such other times as he could spare from his public school, in order to teach his children. Mr. Shafto, who possessed an excellent library, and who immediately saw what advantage it would be to a person of so inquiring a mind and promising abilities as Mr. H. to have access to a good library, liberally offered him the use of it. In order to judge of the benefit, which Mr. H. would derive from this kind offer, we must take into the account the great want there was at that time, even in large towns, of public libraries; especially libraries well furnished with scientific and philosophical works. We were not then what Dr. Johnson calls a nation of readers. Mr. H. in his attendance at Benwell, got a pupil to instruct, that at first he did not anticipate—this was Mr. Shafto himself, who proposed to Mr. H. to revise with him the mathematics that he had formerly read at college. And taking Mr. H. into the library, he pointed out to him the works he had read, and which he wished to re-peruse. In order that Mr. H. might be qualified to take upon him the office of tutor, he allowed him to take the books home,

that he might previously peruse them. This he accordingly did; and commencing with algebra, they pursued their studies together, and Mr. H. ever after retained the esteem and affection of this gentleman, and to him he dedicated his first publication—his Arithmetic. The first edition of his Arithmetic, or, as it was called, The Schoolmaster's Guide, or a Complete System of Practical Arithmetic, was published March 9d, 1764,* as appears from an advertisement in the Newcastle Courant of that day. The following is the account which the author himself gives of the work:—

“ This book, which is an attempt to introduce a regular and rational method of teaching this most necessary science into the generality of schools, and to ease masters of great part of the trouble which necessarily attends their business without such help, contains all the useful rules of vulgar and decimal arithmetic, with their definitions, laid down in a clear and concise manner; together with a great variety of choice practical examples, with the answers, all new, under each rule, and a preface containing some hints towards a proper method of teaching this useful art.”

A second edition of the arithmetic was published on Dec. 20th, 1766; and to this edition was added the Roman method of notation, a large collection of promiscuous questions, and book-keeping.

Perhaps, a stronger testimony cannot be given in praise

* In this year Hutton's name first appears in the Ladies' Diary, with which he was connected, either as contributor or editor, for 56 years. Previous to this he had lost his mother, who died March 17th, 1760.

of the work than to say, it has been a standard school-book for nearly sixty years; for, notwithstanding the imitations which have been made of it by some, or even the improved systems which may have been introduced by others, it still maintains its ascendancy.

This I consider a proper place, to take a general view of the great advantage which Britain now enjoys, from the various works on education published by Dr. H.—It has been observed, “That as an author, his numerous publications have been uniformly held in the highest estimation; and that even his earliest productions continue to be standard works of increasing popularity in every country where the English language is understood.” I do not wish to anticipate his other publications, nor do I wish to assert that his publications on every subject, on which he has written are the best which have appeared; but I do assert, that he introduced a mode of clearness, precision, and simplicity, into his elementary works, that is not to be met with in earlier or even contemporary writers on the same subjects.—Many mathematicians preceding Hutton seemed to write more for display than utility—rather to show over how much ground they could travel, than to pave a way for others to follow them. Hutton, fortunately, had been early trained to the work of tuition, and he had formed a just estimate of the manner in which elementary treatises on scientific subjects should be drawn out; and in this respect I consider him as entitled to the honour of having set the example—an example which has, indeed, been followed in most of the departments of science and literature; and it would perhaps be difficult to find, in

any other modern language, elementary treatises so well adapted for teaching, as are to be found in the English language.

The next work which engaged Mr. Hutton's attention was his Mensuration. In December, 1766, he first announces his design of publishing it, but the proposals were not advertised till Dec. 1767. He then advertises it to be published in quarto, and to consist of twelve or fourteen numbers, three sheets each—the first number to be published in the January or the February following—the succeeding numbers to be published monthly, price sixpence each.

It will strike every one acquainted with the book, that at the time this prospectus was published, only a small part of the work must have been prepared: instead of fourteen numbers, it extended to above fifty. This will give us some idea with what indefatigable industry Dr. H. pursued his avocations. At the time that he was writing this work and carrying it through the press, his school was very numerous. From the time of his coming into Newcastle, he had found successively every room too small for his purpose; he removed from the Flesh Market to St. Nicholas' Church-Yard, and from thence to the Back-Row, and at last he was obliged to build a school-room for himself in Westgate-street.—The grammar school of this town was at that time numerously attended. By a paragraph in the Newcastle Courant, the number of pupils is stated at one hundred and thirty-three; and of these, I understand, a great proportion attended Mr. H. to learn mathematics.—Among his pupils about this time, were the present

Lord Chancellor and also Lady Eldon. So fully occupied he must then have been, that one cannot help feeling surprised at the following notice at the end of one of his advertisements:

“Any schoolmasters, in town or country, who are desirous of improvement in any branch of the mathematics, by applying to Mr. Hutton, may be instructed during the Christmas vacation.”

The success, which Mr. Hutton met with on the publication of his Mensuration, may be judged of, from the very numerous list of subscribers—a list very seldom equalled in provincial publications. The work is dedicated to his Grace the Duke of Northumberland.

As it is pleasant to trace the first steps by which men rise to eminence, I stop here merely to observe, that our celebrated townsman, Bewick, at this time an apprentice with Mr. Beilby, commenced his career as a wood-engraver, by engraving the mathematical diagrams for Hutton’s Mensuration.

As this was the work in which Mr. H. first eminently distinguished himself as a mathematician, it will be proper to give a more particular account of it, and in doing this I gladly avail myself of the pen of Dr. Gregory.—

“At the time when Mr. H. commenced this undertaking, the books on mensuration that were generally used in seminaries of education were those of Hawney and Robertson. Of these, the first contained some attempts at theory, but exhibited in so inelegant and inaccurate a manner as to render the volume altogether useless. Robertson’s work was neat and correct, but limited in its nature, being confined altogether to the exhibition of

practical rules and examples. There had been, it is true, from the time of Wallis and Huygens, and especially since the invention of the fluxional analysis, a variety of disquisitions and investigations relative to rectifications, quadratures, cubatures, &c. inserted in the works of eminent mathematicians, and in the transactions of different societies and academies both at home and abroad. But there needed some masterly hand to seize and collect these scattered fragments, to reduce them to method and order, to correct what was erroneous, curtail what was too protracted, expand and elucidate what was incomplete and obscure, and develope with perspicuity the practical results and applications. All this is attempted with complete success in this treatise on mensuration."

"There can be no question that this is by far the best treatise on mensuration, in its several branches, which has yet been published in any country. Indeed, the subject is so exhausted in this performance, that subsequent writers upon it, at least in England, have attempted little else than mere abridgments. The author treats copiously and elegantly of plane trigonometry, the determination of heights and distances, the areas of right-lined and circular figures, the mensuration of prisms, pyramids, spheres, &c. polyhedræ, solid rings, conic sections, their quadrature, the cubature and complanation of solids, formed by the rotation of conic sections upon their axes and other lines, the method of equidistant ordinates and sections, the centro-baryc method of determining the measure of planes and solids by means of their centre of gravity, &c. The practical rules are

presented in an orderly series, and applied to the solution of numeral examples; the demonstration of the several rules is thrown into notes which are very extensive, and present a most valuable and instructive series of investigations and deductions connected with the successive topics of the work."

About the year 1770, Mr. Hutton was employed by the Mayor and Corporation of Newcastle to make a survey of the town and county of this town, including the whole boundary, with the town moor and leazes, with all their boundary stones, and their numbers, &c. This he accordingly did with great care and labour, and drew a plan of the whole, which he delivered into the the Corporation.

To accommodate the inhabitants of the town, in the year 1772, he published an engraved map of the town only, copied from the larger map, marking the boundaries of the parishes, in peculiar dotted lines, as explained at the bottom of the map.

In making the survey of the town, he was very much assisted by Mr. Fryer, who lately published a map of Northumberland, and who was at that time his assistant. Those, who are acquainted with the irregularity, the great declivity, and the extreme narrowness of many parts of the town, especially as it was at that time, will be sensible of the labour it must have taken to make a correct plan of it; and the plan which was published reflects the greatest credit on those engaged in it. The accuracy with which the different parishes have been marked out, has, I understand, made this plan extremely useful, and it has frequently been consulted when it has

been found necessary to ascertain the division between some of the parishes.

Mr. H.'s attention was next called to another difficult, but very important subject in mathematics, "The Principles of Bridges; containing the Mathematical Demonstrations of the Properties of the Arches, the Thickness of the Piers, the Force of the Water against them, &c. together with practical Observations and Directions drawn from the whole." The fall of the Newcastle bridge, by the great flood in November, 1771, was the cause of this publication. And here we may observe, that there is scarcely a writer who has published so much as Dr. H. has done, whose works upon the whole bear so much on public utility as his. Nothing is for parade —every thing for use. A new edition of this work was published a few years ago, when it was in agitation to rebuild London bridge.

But an event now occurred which deprived his native town of his further services as a teacher, and which caused his removal to a more extensive field of usefulness: this was his appointment to be Professor of Mathematics in the Royal Military Academy of Woolwich. This situation had been held by some mathematicians of the first eminence. The celebrated Thos. Simpson had formerly occupied the chair, and fell a sacrifice to the low and unhealthy situation in which the academy at that time was placed. Mr. J. L. Cowley, who succeeded, found, after he had been there nearly as long as Simpson had been, that his health also was declining, and consequently he resigned. The Master of the Ordnance, at that time the Marquis Townshend,

formed the laudable determination of giving the appointment to the individual, who, by a public examination, should prove himself best qualified to discharge the duties of a mathematical professor, and an advertisement to this effect was inserted in the public newspapers.—Mr. Hutton, resolving to become a candidate, went to London for this purpose.* Previous to his going to London, he, at the suggestion of his friend, Mr. G. Anderson, took the precaution to consult the celebrated

* The following letter from Isaac Cookson, Esq. to Mr. Thomas Hodgson, illustrating this part of Mr. Hutton's life, will be read with interest.

"SIR,

I mentioned to you having seen the account of Dr. Hutton, and that I thought there might be something added, if Mr. Bruce thought proper. I knew the Doctor at the time of his attendance at Benwell; he was at that time a very modest, shy man, and had it not been that Mr. Shafto urged him very strongly to offer himself as a candidate for the professorship, I am sure, from his diffidence, he would not have gone to London. I don't mean his diffidence of himself as to his being qualified, that he was well aware there was no reason to be alarmed at. Mr. Shafto was particularly intimate with Lord Sandwich at that time, I think 1772, he was Post-master-general, having not long before been one of the Secretaries of State; Lord Townshend had succeeded him as Master General of the Ordnance; to Lord Sandwich Mr. Shafto gave him letters of introduction, requesting his Lordship's particular interest, with Lord Townshend and others. Mr. Shafto's patronage proved a happy thing for this country, for the Doctor; and we may be proud of having had him as a townsman.

"I am,

"SIR,

"Your obedient servant,

"ISAAC COOKSON.

"Newcastle, 20th June, 1823.

"To Mr. Thomas Hodgson."

mathematician, Emerson, and being furnished with a letter to him from Mr. George Anderson, he went to Hurworth for this purpose. Mr. Emerson, having examined him in mathematics, encouraged him to proceed, and gave him a letter to the examiners. He had no less than ten competitors, several of them mathematicians of note. The examiners were, Bishop Horsley, the learned editor of Newton's works; Dr. Maskelyne, astronomer royal; and Col. Watson, afterwards chief engineer in Bengal. To all these gentlemen, Mr. H. was personally unknown. The examination continued several days; and although more than half the candidates went through the ordeal in such a way as to give entire satisfaction, yet the superiority of Hutton was so decisive, that they unanimously recommended him as peculiarly qualified to fill the situation, and he accordingly received his appointment on the 24th of May, 1773.*

* As the following letter of the celebrated Emerson refers to Hutton's examination at Woolwich, no apology will be deemed necessary for inserting it here.

"DEAR SIR,

"Mr. Ornsby told me yesterday that you staid all the week at Darnton. When I saw you, you was doubtful about it—That and the bad day hindered me from coming thither on Monday. I suppose Mr. Hutton, by the barrenness of materials, means that he had little to write about. After I received his letter, I waited a long time, expecting to see him, to have an account of his expedition; how he was examined, and by whom, and what competitors there were, &c. At last I heard he was gone by sea; so there was an end of my expectation. When you write to him, please to let him know that I would be extremely glad to hear from him concerning these particular, or

About this time, also, he was appointed editor to all the almanacs published in England except two, the Gentleman's Diary and Poor Robin, in which situation he continued for forty-six years. For writing the astrological part of Moore's Almanac, he employed Mr. Henry Andrews. In 1779, he received the degree of LL. D. from the University of Edinburgh; his friends, Dr. Matthew Stewart and Mr. Dugald Stewart, being at that time joint Professors of Mathematics there. In the same year he was appointed Foreign Secretary to the Royal Society, an office which he held till 1783, when, in consequence of the dissensions which unhappily prevailed in the Society, and the aversion and dislike which were then evinced with respect to the mathematical sciences by some of the leading officers and members, he, together with Dr. Horsley and Dr. Maskelyne, retired from the Society.

Dr. H. devoted himself sedulously to the discharge of his academical duties; yet found time, notwithstanding, to pursue a variety of interesting analytical investigations, as well as to plan some extensive and important

any thing else. And particularly who are his partners in the Critical Review. I am glad he has met with such success, and that he has got his revenge on Clark, who is a very silly fellow, pretending to what he knows little about. He revised my third edition of mechanics, but durst alter nothing, because I remonstrated against it, but he has left several faults uncorrected.

"I am, Sir, your

"Most humble servant,

"W. EMERSON.

"Hurworth, Jan. 25th, 1774.

"To Mr. R. Harrison, Flesh Market, Newcastle."

experimental inquiries, arising out of his appointment at Woolwich.

In the Philosophical Transactions of the Royal Society, for 1776, appeared a paper by him, entitled, “*A new and general Method of finding Simple and Quickly Converging Series*, by which the proportion of the diameter of a circle to its circumference may easily be computed to a great number of decimals.” The method proposed is a general one, and is more extensive than those of *Machin*, *Euler*, and *R. Simson*; and, at the same time, it furnishes a great variety of other series of rapid convergency.

In the Philosophical Transactions, for 1778, appeared Dr. Hutton’s first paper on the *Force of exploded Gunpowder*, and the *Velocities of Balls* projected from artillery. This paper contains a neat explication of the theory of the Ballistic Pendulum, together with an investigation of the effects of friction, the resistance of the air, the time of penetration of the ball, &c. This paper was no sooner laid before the Royal Society, than its ingenuity and value were acknowledged: the council awarded to Dr. Hutton the Copleian prize of a gold medal, which was delivered to him, with an appropriate speech by Sir John Pringle, then President of the Royal Society.

In the same year our author laid, before the Royal Society, his “*Account of the Calculations made from the Survey and Measures, taken at Mount Shichallion, in Perthshire, in order to ascertain the mean Density of the Earth*.” This is a truly excellent disquisition, and the calculations, of which it exhibits the results, were

more laborious, and, at the same time, called for more ingenuity, than has probably been brought into action by a single person since the preparation of logarithmic tables. It is but justice here to state, that Dr. H. was unquestionably the first person, who made a tolerably correct appreciation of the mean density of the earth, by elaborate computations applied to actual experiment.

Without pretending to follow Dr. H. through all his highly useful and laborious performances, we cannot omit mentioning his "*Mathematical Tables*," first published in 1785 ; containing Common, Hyperbolic, and Logistic Logarithms. Also Sines, Tangents, Secants, and Versed-Sines, both Natural and Logarithmic. To these is prefixed, a large and original History of the Discoveries and Writings relative to these subjects ; with a complete Description and Use of the Tables. He also introduced many additions and improvements, and arranged the large tables as well as the smaller ones of proportional parts, much more commodiously than they had ever been before. But the most interesting portion of the volume is the extensive and erudite introduction prefixed to the tables. It contains a copious and impartial historical account of early trigonometrical writings and tables, both natural and logarithmic. The inventions and improvements in logarithms are assigned to their proper authors ; the peculiarities of Napier, Briggs, Kepler, Vlacq, Gregory, Mercator, Newton, &c. are properly discriminated ; and their respective claims distributed with admirable impartiality, by means of immense labour and extensive reading.

After Dr. H. had been about thirteen years at Woolwich, he was in danger of falling into a bad state of health, from too great application, and the house in which he lived being in a confined situation, close to the Academy. It has been already mentioned, that the same circumstance had happened to his two immediate predecessors, one of whom, Thomas Simpson, died in consequence. The Doctor took the alarm, and applied to the Directors of the Board of Ordnance, for leave to remove to a house in a more airy situation at some distance from the Academy. This they readily granted, and instead of the house provided for him in the arsenal, allowed him house-rent. He took a house on Shooter's Hill, and the change of air and the additional exercise he was obliged to take in walking to and from the Academy, speedily restored him to his usual health.

He had not been long resident on Shooter's Hill, when a considerable slip of Woolwich Common was advertised for sale. In his daily walks the Doctor had to pass this piece of ground, and this circumstance suggested to him the idea of purchasing it. He accordingly directed a person to attend for him at the sale; and though the property was not sold at that time, he, having been the highest bidder, afterwards made a purchase of the whole at a less sum than he had bid for it. His object being to build, on examining the ground, he found excellent clay, and commenced making bricks, and built a house for himself. His neighbours ridiculed the idea of building in a situation where they imagined no water could be obtained; but he had taken care previously to satisfy himself on that head by *boring*, (a practice with

which the people there were not well acquainted) and found abundance of excellent water.

Having finished his own house, he began to build others, placing two houses together, and then an interval; and he continued his plan till he had built eighteen houses, and dug three wells to supply them with water. As quickly as he built the houses, he got them let, and had every reason to be well satisfied with his speculation, when an event occurred which proved still more beneficial. Government had now resolved to remove the Academy from its situation in Woolwich, close to the river, to a more suitable situation on Shooter's Hill, and had accordingly begun to make the erections suitable for it. His late Majesty George III. going down one day to view the buildings at the new academy, and riding along the front of it, observed some buildings that appeared very much in the way, said to his attendants, "you must pull these houses down." His Majesty was immediately informed, that these houses were private property, and therefore could not be pulled down—that they belonged to Dr. Hutton. "But," replies his Majesty, "if you cannot pull them down, you can purchase them." This, of course, was acquiesced in, and in a few days, the Doctor was informed, that government wished to purchase the property, and requested to know the price he set upon it. He was very candid, and stated his willingness to part with the premises at a price to be fixed upon by the government surveyor. A person was accordingly appointed to make the survey, which having been done, and the annual value ascertained, a price was fixed upon it, and the whole sold to

government. The purchase of that ground thus turned out to the Doctor a very profitable speculation ; and, in relating this circumstance, he observed how frequently events, which we call misfortunes, prove to us the very reverse, as was the case with himself ;—for the lamming of his arm had been the means of making him a mathematician, and the temporary loss of his health, he considered, as the origin of the fortune he had realised.

Having already noticed some of the most remarkable events in the life of Dr. H. I shall now confine myself to such, as will form a sort of connecting chain between him and his native town. Although I believe he never revisited it after his removal to Woolwich, there is not one amongst all those celebrated men, to whom Newcastle has given birth, that has taken a greater interest in its improvements during the last twenty or thirty years—especially those connected with education and literature. The formation of this Society and its gradual extension gave him the greatest pleasure, and to this circumstance I may chiefly attribute the advantage, which I enjoyed of an occasional correspondence with him for more than twenty years. He had been early elected an honorary member, and was desirous that the Reports, &c. should be regularly sent to him, and this I undertook to do.—The establishment also of the New Institution for lectures was one in which he took great interest, and he became an annual subscriber of five pounds a year to its support ; which he continued as long as he lived. Accustomed as he had been during the whole of his life to the education of youth, he was well acquainted with the great advantages which young persons derive from attending

lectures on natural philosophy. I believe he entered into this institution with the greater spirit, as it brought to his recollection the lectures, which had been delivered in Newcastle by Dr. Rotheram, nearly during the whole time that Dr. H. taught school here. I may here be excused for stepping out of my way to notice the change which has taken place in society since the middle of the last century: the usual hour at which Dr. R. delivered his lectures was four o'clock in the afternoon, as appears from the following paragraph, in the Newcastle Courant, of March 4, 1764.

"The Introductory Lecture to Dr. Rotheram's Course of Geography and Astronomy was read on Wednesday last, in Mr. Parker's Long Room, to a very numerous and genteel company—and we hear the course will be continued on Wednesday, the 14th inst. at four o'clock, when the hours of attendance for the future lectures will be fixed by the majority of subscribers."

By a subsequent notice we find that four o'clock was the hour fixed upon. And Dr. R.'s lectures on Pneumatics, in the following year, were delivered at the same hour. The celebrated Ferguson also delivered his lectures, when in Newcastle, in Dr. Hutton's schoolroom, in Westgate-street.

It will be necessary here to mention another institution to which Dr. H. also became a liberal contributor, I mean the Royal Jubilee School. That institution may be said in some measure to owe its origin to essays that were read before this Society, for we find in the sixteenth year's report, that, in June, 1808, "An Essay was read

on the Education of the Poor, by Mr. Jas. Graham, of Berwick." At the next meeting in July, the subject of the education of the poor was again taken up by Mr. I. Richardson, who read an Essay on the Propriety of introducing the Mode of Instruction proposed by Dr. Bell and Mr. Lancaster. In consequence of this, a number of individuals as well members of the society as others, joined in a respectful application to the Corporation for their countenance and support in so laudable an undertaking; this was productive of the desired effect, for soon afterwards the Mayor and Corporation publicly advertised their intention to bring forward a plan for this important purpose.

The happy result of these exertions is known to us all. Advantage was taken of the preparations for public rejoicing, which were generally made throughout the kingdom, in 1809, to commemorate the happy event of his late Majesty's entrance into the fiftieth year of his reign; and, at a public meeting, of the town, held in the Guild Hall, it was resolved, that, instead of illuminating, a collection should be made from house to house throughout the town, for the purpose of building a school, which might remain as a lasting monument of public duty and respect to our venerable monarch, and also tend most effectually to promote his benevolent wish, that every child in the kingdom might be able to read the Bible. The subscription was liberal, amounting to £730. besides 300 guineas given by the Corporation, and was devoted to the building of the Royal Jubilee School, so named to commemorate the event.

It was necessary to premise these things to pave the way for extracts from some of the Doctor's letters, which I shall now beg leave to give:—

"Woolwich, July 30th, 1802.

"I thank you for your offers of service, and shall take this opportunity to ask you the favour to procure and send me a copy of all the proceedings that have been printed by, or relative to, your Philosophical Society, which I should like to have to bind them up regularly.

"To Mr. Edward Bruce, Byker West House,
Newcastle on Tyne."

In 1807, Dr. H. having suffered much from a pulmonary complaint, during the preceding winter, resigned his professorship at Woolwich, after having most honourably filled it for upwards of thirty-four years. On his retirement, the Board of Ordnance assigned him a pension of £500. per annum, in testimony of regard for his long and faithful services; and, as he had previously acquired a very handsome fortune by the profits upon his laudable exertions, he fixed his abode in Bedford Row, London, where, till his death, he enjoyed his *otium cum dignitate*, heightened by the sweets of domestic intercourse and the occasional society of his friends.

No circumstance connected with the Society was a matter of indifference to Dr. H. as appears from the following extract:—

"London, Bedford Row, Aug. 3, 1809.

"I am obliged to you for the printed pamphlets which I have received; and beg you will have the goodness to

remember and favour me, from time to time, with every thing that may be printed by and concerning the Library and Philosophical Society. And I rejoice at the fair prospect that is now before the Society, and that the philosophical lectures are likely to proceed with so promising effect under so able an agent as Mr. Turner.

“ I am, dear Sir,

“ Your faithful servant,

“ CHAS. HUTTON.

“ *To Mr. John Bruce.*”

The following is the letter which announces Dr. H.’s annual subscription of five pounds each to the New Institution and to the Royal Jubilee School :—

“ *London, August 9th, 1813.*

“ DEAR SIR,

“ I have to thank you very much for your kind attention in sending me, from time to time, the reports of the Literary and Philosophical Society of my native town, and the sketches of Mr. Turner’s philosophical lecture, all of which I find to be very interesting. I have now to thank you for the 19th and 20th year’s report, as well as for the 1st and 2d reports of the Jubilee School, with your kind accompanying letter.

“ It is with truth and much satisfaction, that I have to announce my high respect, and even admiration, of both these institutions; and have to assure you, that I take shame to myself for never having contributed my mite towards the promotion of these excellent institutions.— As, however, it is better late than never to do what we think is right, I beg the favour of you to announce, that

I wish to have the honour of becoming an annual subscriber of five pounds to each of them, having inclosed ten pounds to pay the first year's subscription ; and will further thank you to remind me, from year to year, when each year's payment becomes due, that I may have the pleasure of sending it to you.

“ With much respect, I am, dear Sir,

“ Your's, very truly,

“ CHAS. HUTTON.

“ *To Mr. John Bruce.*”

Dr. Hutton was chiefly employed, during the latter years of his life, in carrying new editions of his valuable publications through the press. The great attention, which he bestowed upon their accuracy, very much enhances their value. The following letter will shew the multiplicity of his engagements in 1814 ; the first paragraph relates to an Essay on Pestalozzi's System of Education, which I had the honour of laying before this Society :—

“ *Bedford Row, July 1st, 1814.*

“ DEAR SIR,

“ I am just favoured with your letter (dated as far back as April last) and the several valuable enclosures, for which you have my most sincere thanks. The three large drawings for a new method of teaching are beautifully executed, and entitled to careful preservation. You have also well succeeded in their application to the rules of arithmetic, even to fractions inclusively. —The device must be a great help to very young beginners, and may, perhaps not inaptly, be called the Child's Guide to Arithmetic.

"I rejoice to see so good a report of the Jubilee School, and such a long and interesting list of subscribers to it. How happy the idea of thus manifesting gratitude instead of the boisterous and inordinate revelry attending illuminations! How sweet the fruits and cheering the lasting prospects of the happy substitution!

"I greatly admire the three printed sketches and reports you have sent me, all very ably and judiciously written by your excellent lecturer, to whom, I am sure, the town ought in justice, to be most grateful. As you say that Mr. T. is going through the last of his series of lectures, I should think it will be advisable to begin the series again, and so repeat them, with occasional variations and additions, to the edification of the successive varying audiences.—Inclosed is my annual subscription, to be equally shared as before, between the lectures and the school, and continue yourself to recommend children to the school in my stead.

"I must just inform you that I am now drawing fast towards a conclusion of my long protracted labours. I have got published, in three volumes of Tracts, the collection of my own original inventions and discoveries.—I have also just got published, a new edition of the Recreations, in 4 vols. with some amusing additions, among which is the entertaining and extraordinary correspondence with Lady Milbanke, on the Divining Rod. I have also just got to press the long promised and expected new edition of my Dictionary, with great improvements, which have cost me immense labour. It will still be in 2 vols. a little larger than before, and to be published altogether. After that, I think there will only

remain to incorporate, in regular order, the subjects of my Course of Mathematics, all the three volumes into two large ones, on the occasion of some future edition.

“ With much regard, I am,

“ Your’s, very truly,

“ CHAS. HUTTON.

“ *To Mr. John Bruce.*”

Dr. Hutton had for some time a strong wish to visit his native town, but he now found the infirmities of age creeping fast upon him, and he was induced to defer, from time to time, the intended visit, though he scarcely ever gave up the idea of being able to accomplish it. In a letter, dated January 15, 1816, he observes, “ it would certainly, my dear Sir, give us much pleasure to visit our old town, and all the well-known scenes in the environs, and our few good friends; but it seems a great undertaking for persons who move so little, and who feel that every year adds to their unfitness for the undertaking. However, I do not quite despair of the so-long-desired pleasure.”

Previous to my giving any more extracts from the Doctor’s letters, I must take notice of another institution, which at this time experienced the effects of his bounty, I mean the Schoolmaster’s Association. This association was formed in the year after he left Newcastle, viz. 1774, for the support of aged and infirm members and widows, and, though it has continued to this day with undiminished usefulness, and received the patronage and support of many benevolent and opulent individuals, at the head of whom stands the venerable Bishop of Durham,

yet the Association have never been able to grant to the widows and aged members the full payments which the original founders proposed. This is owing to the great number of widows who are claimants upon the funds of the institution. In the year 1816, I took the liberty of laying the state of the Association before Dr. H. and at the same time asked him the question, whether the great proportion of widows at that time receiving the stated benefit from the Association, (nineteen widows to forty-nine members) was not a proof that the occupation of a schoolmaster was less healthy than some other professions? The following is his reply to this part of my letter :—" As you say, my good friend, it is a very alarming circumstance, that in your Schoolmasters' Association, consisting of only forty-nine members, you have nineteen widows to support or to assist; and, perhaps, not fully to be accounted for. Probably it may be partly accounted for, from the circumstance that members, after becoming widowers, often marry again, and commonly with women (often much) younger than themselves; after which, it is usual for the husband to die before the second wife. Hence it must, and does, happen, that there is always existing in society more widows than widowers; it being much easier for a man to get a second wife, than for a woman to get a second husband. I believe this will account for the situation of your Association. The same thing in some degree happens in all such societies, but then they commonly balance that cause by imposing a proportionate fine on all repeated marriages of their members. The circumstance, then, of your widows ought not to be alarming to schoolmasters,

as if their occupation is an unhealthy one, or that they are not usually long-lived; for the fact is, that they are more long-lived than most other classes, which happens partly on account of the nature of their professions, but still more from their moderate and moral habits, being the most regular and virtuous class of men in society, as might easily be proved by many cogent reasons. Inclosed is the sum of £5. by way of beginning my annual subscription for your Schoolmasters' Association, and possibly I may hereafter do something more for it also."

In the same letter are also the following observations respecting the Literary and Philosophical Society, Jubilee Schools, &c.

" Through the favour of Mr. Jack, I last evening received your interesting packet, and the several satisfactory documents of useful information, relating to the many interesting literary concerns in which my natal place is so laudably employed, and which transmissions, I trust, you will have the goodness to continue during the small expected remainder of my life.

" I observe the report of the Literary and Philosophical Society, and am rather surprised the Society has not kept and appropriated all the papers that have been read at the meetings, which I believe, is the uniform practice of all other societies, and out of which communications a selection is made for publication, at certain periods, or when convenient.

" Your schools I am very well pleased with, as the enlightening the lower orders, as well as the higher, is the way to render them virtuous, happy, and respectable. I sent a few days ago my annual subscription to Mr.

Atkinson, £5. to the school, and the same sum to Mr. Turner's lectures, which I hope, he will contrive to make perpetual, as there is no end to their usefulness."

About this time, Dr. Hutton met with a great disappointment. His library, which, I believe, he justly styled the best mathematical collection in the kingdom, he was anxious to keep together as a national benefit, and he had every reason to believe that it would be purchased for the British Museum; this, however, was prevented through the influence of the then President of the Royal Society, Sir Joseph Banks, who still retained a portion of the ill-will which had originated in the Royal Society when Dr. Hutton was Foreign Secretary. This is now deeply to be lamented, as such a valuable collection of the old mathematical writers will not easily again be collected. Being disappointed in this, his favourite scheme, he immediately resolved to sell the whole by auction.

How keenly he felt upon this subject, will be shown by the following extract, from one of his letters.

" My library, yes, I have been cruelly prevented from having it kept together in the British Museum, by my old implacable enemy, the President of the Royal Society.—So it is to be sold by auction, as I shall have little or no further use for it, and it would prevent me from chusing another residence, and as it could be of no use to any of my family, after my death. The dispersion is a great pity, as it is esteemed the best mathematical collection in the kingdom. By this time, I believe, Mr. Charnley has received some of the catalogues, and I have here inclosed one for yourself. Possibly some articles

might be picked out, that might be desirable for the library of your Society.

" My good Sir, both Mrs. H. and myself have suffered very much in our health this last winter and spring, more so indeed than in several years before, which has rendered me quite the old man, a sensation I hardly felt before; so that I fear I must say it is rather improbable that I shall be able to visit Newcastle this year, though I so much wish to do it."

This Society made some valuable purchases out of the library, but it is to be lamented, that steps were not taken which might have prevented its dispersion, and have transmitted it entire to his native town.

The next circumstance, which I have to record of Dr. Hutton, is one which greatly redounds to his honour, and one from which, I hope, this town will derive more advantage, than merely enjoying the benefits of his munificence. I hope his example will be followed by other great and opulent individuals, who will in a similar way assist the funds of some of the many charitable institutions with which Newcastle abounds. But the following letter will best relate the circumstance :—

" Bedford Row, May 8th, 1817.

" MY DEAR SIR,

" Since the date of your last letter, which is a long time ago, I have had almost continual ill health, which has reduced me to such a condition, that I can hardly write my own name. You give me much satisfaction about the books you had out of the sale of my library, and would to God that you had

got the whole. Inclosed is a bank note of £15., viz. £5. for Mr. Turner's Lectures, £5. for the Jubilee School, and £5. for the Schoolmasters' Association. And as my health is now so precarious, I wish to fall upon a method of making the two latter perpetual, and leave it to you to contrive the method and to transact it. My idea is to sink £100. at common and perpetual interest, for each of these two concerns. Perhaps those £200. could be lent in that way to the town Corporation, on such permanent and safe manner. As to the lectures, I shall continue to pay that annually.

" But the grand misfortune of all that has befallen me, is the recent loss of my dear and valuable wife, which has left me almost alone in the world.

" With much esteem and regard,

" I am, dear Sir,

" Your's, very affectionately,

" CHAS. HUTTON.

" To Mr. Bruce."

Immediately on receiving this letter, application was made to the Corporation, who readily acceded to the plan proposed by the Doctor, and agreed to take the £200. and pay £5. annually, for ever, to each of these institutions. It is but justice also, to state, that Nathaniel Clayton, Esq. at that time Town Clerk, showed the greatest attention in getting the deeds drawn out exactly in the way which Dr. H. wished. In order to give the utmost publicity to this transaction, I here give a copy of the deeds, one of which is lodged with Thos. H. Bigge, Esq. Treasurer to the Royal Jubilee School, and the other

with the Rev. W. Turner, President to the Schoolmasters' Association.

" Know all men, by these presents, that we, the Mayor and Burgesses of the town of Newcastle upon Tyne, in the county of the town of Newcastle upon Tyne, are held and firmly bound to Sir Matthew White Ridley, of Blagdon, in the county of Northumberland, Baronet; Thomas Gibson, of the town and county of Newcastle upon Tyne, Esquire; Rowland Burdon, of Castle Eden, in the county of Durham, Esquire, and Nathaniel Clayton, of the town and county of Newcastle upon Tyne aforesaid, Esquire, (trustees for a certain association in Newcastle upon Tyne aforesaid, called the Association of Protestant Schoolmasters, in the North of England, and instituted in one thousand seven hundred and seventy-four,) in the penalty or penal sum of two hundred pounds of the lawful money of the united kingdom of Great Britain and Ireland, current in England, to be paid to the said Sir Matthew White Ridley, Thomas Gibson, Rowland Burdon, and Nathaniel Clayton, or their certain attorney, executors, administrators, or assigns; for which payment, well and faithfully to be made, we bind ourselves and our successors firmly by these presents.— Sealed with our common seal. Dated the thirtieth day of June, in the year of our Lord one thousand eight hundred and eighteen."

" Whereas Charles Hutton, Doctor of Laws and Fellow of the Royal Society, formerly of Newcastle upon Tyne, and now of Bedford Row, in the county of Middlesex, being desirous to render permanent his annual subscription of five pounds towards the maintenance and

support of the above institution, called the Schoolmasters' Association, did, on the fifth day of June, one thousand eight hundred and seventeen, pay into the hands of the chamber clerk or treasurer of the said Mayor and Burgesses, for their use, the sum of one hundred pounds, with the intent and purpose that the said sum should remain at interest with the said Mayor and Burgesses, and that the interest thereof should be yearly paid, and applied to the purposes of the said institution, so long as such institution should exist; and in the event of such institution being discontinued or ceasing to exist, that the said principal sum of one hundred pounds should be paid over to himself, if he should be living, or if dead, to his personal representatives. Now, the condition of this obligation is such, that if the above bounden Mayor and Burgesses, or their successors, shall, and do, well and truly pay unto the above-named Sir Matthew White Ridley, Thomas Gibson, Rowland Burdon, and Nathaniel Clayton, their executors, and administrators, and assigns, (in trust, and by them applied according to the above declared intent and purpose of the said Charles Hutton,) the full and just sum of one hundred pounds of like lawful money, at the Town's Chamber, in the Guildhall, of the said town and county, on the fifth day of December now next ensuing, with legal interest for the same, to be computed from the said fifth day of June, one thousand eight hundred and seventeen; then the above written obligation to be void and of none effect, otherwise to be and remain in full force and virtue.

(Signed)

"ROBT. CLAYTON, MAYOR."

From perusing some of the letters which I received from Dr. H. about this time, I am reminded of the great interest which he took in his Diary correspondents.—The great advantage, which he has been of to the country at large, by recommending able and skilful mathematicians to fill situations in many of our public seminaries, is well known ; and we have an example from among ourselves of our late associate, Mr. Riddle, who was chiefly by Dr. H.'s exertions appointed mathematical professor in the Royal Naval Asylum at Greenwich—a situation for which he is so eminently qualified. I could also adduce, were it proper, his benevolent efforts, to raise the fallen fortunes of some of his fair Diary correspondents.

The Doctor's health continued for some time in a very precarious state; and his weakness was such, that he frequently laments his inability to carry on his usual correspondence; he observed in one of his letters "it is now no small task to scratch a few lines of a letter."—His friends, however, had no reason to complain of his want of punctuality. His perseverance and regularity seemed never to forsake him, and when others would have thought their weakness and infirmities a sufficient excuse for not writing, he still continued to write his own letters ; although some, which I received from him about this time, shew with what difficulty he could manage the pen. It was, however, a pleasing circumstance, to observe, that during the last year or two of his life, his hand-writing seemed to recover itself, and to be nearly as good as it was twenty years previous.

The following is an extract of a letter dated April 24,
1818 :—

"I am going to try to scrawl for you two or three lines, though still so weak, that my fingers are not able to command the pen. I have been for eight or nine months closely confined in the house, good part of the time in bed, and all to the chamber, a good while without hope, owing to the severity of cold upon cold. I am now, however, very slowly recovering, and seem only to want fine and warm weather, to enable me to get out a little, and to enable me to go on a little while longer. I thank you, dear Sir, very much for your kind remembrances of me, and for the pleasing pamphlets on the Literary Society, and the Jubilee School, the improving state of which I greatly rejoice at, as well as the improving state of comfort in the town, by the use of gas lights. In most of my time, the town was in total darkness, and only received the street oil lamps, a very short time before my departure from it."

Towards the end of the year 1821, a few of the Doctor's intimate friends in the neighbourhood of London proposed, as a proper mark of high respect and veneration for his character, and as a tribute of gratitude for his important labours in the advancement and diffusion of mathematical learning, during the long period of sixty years, to have a marble bust executed of him by some eminent artist, and entered into a subscription accordingly. A very ample list of subscribers was soon collected, at the head of which stood the name of the Lord Chancellor, his former pupil. Several of the public bodies in the nation joined in this very proper mark of respect by becoming subscribers, among which were the Corporation and the Trinity House of this town, as

well as the Literary and Philosophical Society, and the Society of Antiquaries. It was stated in the printed circular, that the marble bust was to be given to the Doctor himself, with the hope that he would hereafter present it to some scientific institution. About this time I had occasion to write to him, and to give him some information respecting this Society. I at the same time took the liberty to suggest to him the consideration, whether the rooms of the Literary and Philosophical Society in this his native town were not the most suitable place for the final destination of his bust; and I apologized for taking such a liberty by stating to him, that I had repented ever since the dispersion of his library that I had not in time given him a hint that might have saved the dispersion of that valuable collection of books.

The following is the letter which I received in reply, and is the last which I had the pleasure of receiving from him :—

“ Bedford Row, 22d March, 1822.

“ My DEAR SIR,

“ I am ashamed so long to have delayed acknowledging your kind and excellent letter of Feb. 23, a delay for which your goodness will find an excuse and forgiveness in my unfitness, and consequent reluctance, for writing. For the valuable contents of your letter I must thank you very much indeed, as well as for the justice you do me in supposing I am greatly interested in the welfare and honour of every thing that concerns my native place; and particularly the few worthy characters whom I have the pleasure to call my personal friends. I am glad the Literary and Philosophical

Society has at length fixed on a site for their new and permanent situation, and that so central and convenient, and so near the last abode of myself. I know the house well, and have been often in it; and which, when I left Newcastle, was, and had been for many years before, the residence of Mr. Gibson, the Town Clerk, who was much of a gentleman, and every way a worthy character.—The house was always esteemed a very excellent one, with a fine open area in front, and spacious garden behind, extending to the Town Walls, making a conspicuous figure in my own engraved plate of Newcastle. I trust that your Building Committee will well deliberate and select the plan for the new buildings, respecting rather usefulness and economy, than mere show and elegance. When agreed on, I shall be grateful for a small copy of the plan and elevation. Indeed I will venture to hint the propriety of having executed, for general use and sale, a small engraved view of the whole, either for general sale, or for insertion in some magazine, accompanied with a description of that work and the Society, which may probably attract additional subscriptions to ten times the amount of the expense of the publication.

“ When now speaking of expense, I beg of you to announce my subscription of £20. towards the new building, which I shall transmit through our friend Mr. Riddle, whom I have the pleasure of seeing now and then, and who seems to be happy in his new situation at Greenwich, where his labours will doubtless be very valuable and useful.

“ On the subject of the final future destination of the

marble bust, I observe your delicate hints, which I assure you are much in unison with my own views and wishes, though it would, perhaps, be improper to make an immediate premature promise. Would to God,* also, that you had given the hint in time about my books, which might have deprived my enemy of his triumph in disappointing me, and have secured to your Society the satisfaction and credit of possessing the best mathematical library in the kingdom. But lamenting now is useless, though we now hear frequently the execrations against the late President of the Royal Society of London, for having caused the *dispersion* of the only library that future mathematicians could have had recourse to.

Yes, dear Sir, I observed the deep affliction that our friend Mr. Turner must have felt for the death of his excellent son,* of whom I perceive some account, perhaps by the parent himself, † in the last number of the Newcastle Magazine. I had not courage to write to him on the occasion, but wish you to mention my respects and condolence to him.

"I am glad to have the pleasure to inform you, that my health has much improved, and that it appears to have now no very great enemies but damp, uncomfortable weather and old age, against both which I fear there is no protection. But so much better do I feel now that, if it continue, I do not despair of being able to follow my wishes to have the pleasure to run down when your new buildings are completed, to have the pleasure of

* The Rev. Henry Turner, Minister of the High Pavement, Nottingham.

† By the Rev. J. G. Robberds, of Manchester.

seeing them, and paying my grateful respects to my present remaining friends in Newcastle.

“ With my daughter’s respects and my own,

• “ I am, dear Sir,

“ Your obliged and affectionate servant,

“ CHAS. HUTTON.

“ *To Mr. Bruce.*”

These wishes, alas! were never to be gratified. But though insuperable difficulties presented themselves, he for a considerable time pleased himself with the idea of being able to accomplish the journey. In the spring and summer of 1822, he had the gratification of receiving visits from several well known friends and correspondents in this his native town. Among these was Mr. Wm. Armstrong, who judiciously advised him to make his visit with as little delay as possible, and pointed out a mode by which he could travel with the least inconvenience—by coming down in one of the London and Leith steam packets, which would land him at Tynemouth. This idea the Doctor embraced, as appears by the following extract of a letter, to Mr. Armstrong :—

“ *Bedford Row, 20th April, 1822.*

“ MY DEAR SIR,

“ I am just favoured with your kind letter, so very honourable by its contents of respects from my dear and most respectable townsmen;* the recollection of whom is at all times so enlivening to my

* Mr. A. had communicated to the Doctor information of various subscriptions in this town, towards defraying the expenses of the bust.

heart. Pray, dear Sir, have the goodness to present the grateful respects of a humble individual to all his too partial townsmen, for their kind and consoling testimonials of the recollections so consoling and flattering to his breast. Particularly the Worshipful Corporation, the Brethren of the Trinity House, the Gentlemen of the Exchange, those of the Literary and Philosophical Society, &c., and say that if health permit me, I fully intend to do myself the honour and great pleasure of accomplishing in summer my pilgrimage to the dear place of my nativity; though ill able now to visit and revise the many places of my youthful scenes of infantile delights. And thank you, dear Sir, for your kind advice and offer of assistance of accommodation in the conveyance, which will be very acceptable to so ancient and so novel a traveller. I was also, the day after you parted from me, honoured with a visit from Sir John Swinburne, the worthy president of your Literary and Philosophical Society, and had the pleasure of a long and interesting conversation on scientific and intellectual subjects. He also was so kind as to solicit my visit to Newcastle, and kindly recommended the same easy mode of conveyance that you mention, and which indeed is the only one which I could venture to encounter; for I well remember that in my youth, more than half a century ago, I was almost shaken to pieces by land conveyance, in two or three journeys then made to London.

“ I am, dear Sir,

“ Your much obliged,

“ CHAS. HUTTON,

“ To Wm. Armstrong, Esq.”

But when the time approached in which he was expected to undertake the voyage, he was obliged, though with great reluctance, finally to abandon the idea of it. This was not so much from the fear of bodily fatigue, as from the apprehension, which his friends entertained, that any change in his long accustomed regular habits would be too much for his feeble frame.

The marble bust of the Doctor, having been executed by Gahagan, in a highly satisfactory manner, the Committee for conducting the subscription, determined upon its presentation, and a day was fixed upon accordingly. This was on the 21st of September, 1822, when they waited on the Doctor, at his house, in Bedford Row.— They then addressed him as follows :—

“ We have the honour, Sir, of waiting upon you as a deputation, to pay you a tribute of respect, by the presentation of this bust, which is considered a very faithful and expressive likeness.

“ We have, in common with other admirers of your talents, long wished to possess as correct and lasting a resemblance of your countenance, as your valuable works present of your mind ; and we are now highly gratified, having obtained casts of this admirable bust, which we shall always regard with veneration.

“ We have likewise experienced much satisfaction in the success of the subscription, by the cordial co-operation of so many distinguished characters and public bodies. Several of your early pupils, now arrived at the highest eminence in their respective professions, and numerous other men of science, who have profited by your labours, seemed emulous in manifesting their gratitude and esteem.

"Impressed with the same sentiments, we request, Sir, that you will accept this bust as a testimony of respect for your virtues and talents, and a tribute of gratitude for your important labours."

To which Dr. Hutton gave the following answer:—

"GENTLEMEN—Nothing could be more gratifying to my feelings than this demonstration of your regard.—So flattering a testimony from such distinguished individuals, and public bodies, is an honour far beyond what I could have aspired to. Nor I did conceive that any present at my advanced period of life could have given me such heartfelt satisfaction.

"If, indeed, any thing could enhance the value of this gift, it is the kind manner in which it is now presented. It is not in the power of any language to express my gratitude on this occasion. I can only offer my sincere wishes, Gentlemen, for your lasting happiness, and that of all the subscribers."*

The Committee then proceeded to examine the difference between the receipts of the subscriptions, and the disbursements, when they found a considerable surplus, which they agreed to dispose of in the following manner: To engrave a die, for striking off medals, (one of which to be given in a case to each subscriber,) to contain, on the *obverse*, the head of Dr. Hutton, in profile, with an appropriate legend of name, age, &c.—*On the reverse*, emblems of two Philosophical Discoveries by Dr. Hutton; the one on the Density or Weight of the Earth,

* It is proper here to observe, that soon after the death of Dr. H. official information was given by General Hutton, that his father had bequeathed the bust to this Society; it has since been received, and now ornaments their Library.

and the other on the Exact Force or Strength of Gunpowder; with an appropriate Motto, &c.

In October last, Dr. H. caught a severe cold. This issued in a pulmonary complaint, which soon made rapid encroaches upon his constitution. His physical strength visibly declined; and many of his actions, and not a little of his conversation, evinced that he anticipated approaching dissolution. He retained, however, the entire possession of his faculties till very near his death; and so late as the Friday before his death, he dictated a letter in reply to a communication he had received that morning, requesting his advice upon the subject of the arches of the new bridge to be built on the removal of the old London Bridge. On the Saturday and Sunday he became gradually worse, and at 4 o'clock on the morning of Monday, Jan. 27th, 1823, he expired without a groan.

There are some other circumstances in Dr. H.'s life which I intended to notice, but I must for the present forbear, and shall detain this Society no longer than by reading a letter from the present Lord Chancellor to Gen. Hutton, and also his character as delineated by Dr. Gregory.

It has been already mentioned, that amongst the subscribers to the bust, was the Earl of Eldon, Lord Chancellor of England: upon this occasion the Doctor wrote a letter of thanks; and, a few days after his decease, his son, General Hutton, sent the medal to this highly distinguished Nobleman, with an account of the melancholy event. The following letter was written in answer; and we present it here, as not less honourable to his Lordship's feelings, than to the memory of Dr. Hutton:—

"Feb. 3d, 1823.

" SIR,

" I request you to accept my very sincere thanks for your communication received on Saturday last.

" Full sixty years have passed since I had the benefit of your venerable father's instructions, and that benefit I regard as one of the many blessings which I have enjoyed in life, and of which blessings I wish I had been more worthy.

" I feel very painfully that I did not wait upon Dr. Hutton personally to thank him for his letter, in which he wrote with such remarkable and affecting kindness respecting Lady Eldon and myself, both his pupils. I shall preserve that letter as a testimony, that a person of his eminence had, through so many years, recollected us with a sort of parental affection.

" I shall not fail to preserve anxiously the medal which you have been pleased to send to me, and for which I beg you to receive my thanks. To secure to his memory the respect and veneration of his country, this memorial was not wanting; he will long be remembered by a country so essentially benefited by his life and works.

" I am, Sir,

" Your obedient and obliged servant,

" ELDON."

The following is the character of Dr. Hutton, as drawn by Dr. Gregory. It will be seen by the date at the end, that it was written during Dr. Hutton's life.

" As a preceptor, Dr. Hutton was characterised by mildness, kindness, promptness in discovering the difficulties which his pupils experienced, patience in labouring

to remove those difficulties, unwearied perseverance, and a never-failing love of the act of communicating knowledge by oral instruction. His patience, indeed, was perfectly invincible. No dullness of apprehension, no forgetfulness in the pupil, ever induced him to yield to irascible emotions, to forfeit his astonishing power of self-control. During the last twenty-five years, I have had the most favourable opportunities of acquainting myself with the best modes of giving instruction in the University of Cambridge, and in other institutions, both public and private; and during much of that time, I have been extensively engaged in the same profession; but I do not hesitate to say that I have neither seen, nor have the least conception of, any oral instructions, the excellencies of which bear any comparison with those of Dr. Hutton.

“ As a lecturer, his manner was deliberate and perspicuous, his illustrations happy and convincing, and his experiments usually performed with neatness and success.

“ As an author, Dr. Hutton has long been the most popular of English mathematical writers, and there are obvious reasons for this popularity which promises to be as permanent as it is extensive. His grand objects are utility in the topics of investigation, simplicity in the mode of their attainment or advancement. He has a constitutional, and, I believe, a conscientious, aversion from the pedantry and parade of science. He loves science, and he promotes it for its own sake, and that of its tendencies. He never, by affecting to be abstruse, becomes obscure, nor does he ever slide into digressions for the purpose of showing how much he knows of other things besides those that are immediately under

discussion. Hence, he is at once concise and perspicuous, and though he evidently writes rather to be useful than to obtain celebrity, he has procured for himself a reputation such as hundreds, who have written for reputation alone, will never attain.

"The valuable peculiarities of Dr. Hutton as a teacher, professor, and writer, emanate from intellectual and moral characteristics, which I cannot attempt to delineate fully. Suffice it to say, that he is remarkable for his unassuming deportment, for the simplicity of his habits, the mildness and equability of his temper, and the permanency and warmth of his personal attachments. He owes much to an undeviating regularity in the distribution of his time, to a correct and tenacious memory, (from which, until he was more than eighty years of age, scarcely any thing escaped,) and at the same time to as steady a practice of tabulating and classifying memoranda on all subjects of conversation, speculation, and enquiry, as though he had no memory at all. The habits and dispositions of many men tend to stifle their genius, and preclude them from attaining eminence; but the habits and dispositions of Dr. Hutton have all contributed to the maturity and perfection of his genius, by supplying that admirable stability of purpose, and continuity of effort, with which he has always kept it under beneficial discipline.—*Royal Military Academy, Woolwich, June 18, 1818.*"

The following is the advertisement alluded to in page 6th. A copy of it could not be procured in time to be inserted in its proper place; but as it ascertains exactly,

the date of Dr. H.'s commencing school in Newcastle, and is in other respects worthy of preservation, it will not be thought improper to give it a place here.

TO BE OPENED

On Monday, April 14th, 1760, at the Head of the Flesh Market, down the Entry formerly known by the name of the Salutation Entry, Newcastle, A WRITING AND MATHEMATICAL SCHOOL, where persons may be fully and expeditiously qualified for business, and where such as intend to go through a regular course of Arts and Sciences, may be compleatly grounded therein at large, viz. ;—in Writing, according to its latest and best improvements; Arithmetic, in all its parts; Merchant's Accompts (or the true Italian method of Book-keeping); Algebra; Geometry, elemental and practical; Mensuration; Trigonometry, plane and spherical; Projection of the Sphere; Conic Sections; Mechanics, Statics, and Hydrostatics; the Doctrine of Fluxions, &c. Together with their various applications in Navigation, Surveying, Altimetry, and Longimetry; Gunnery, Dialling, Gauging, Geography, Astronomy, &c. &c. &c. &c. Also the use of the Globes, &c. Likewise Short-hand, according to a new and facile character never yet published. By

C. HUTTON.

* * * For the accommodation of such gentlemen and ladies as don't chuse to appear at the public school, I propose (at vacant hours) to attend them in their own apartments.

FINIS.



Erratum.—In Page 26, line 2d, for Library, read Literary.

Newcastle: printed by
T. & J. Hodson, Union-street.

find that any such injury has been committed. It is extremely disgraceful to members of any society, but to a society of that class of which it has been so frequently held that education would be injurious to them, who are so much bound to shew that they do not merit the language that has been used towards them, and that the imputations cast upon them are ill-founded—such practices must prove doubly injurious, and each member should deem it his duty to keep a wary eye on the property of the institution, and thus to protect its character as well as its possessions.

From the accounts, it appears that the balance of £38. 3s. 1½d. due to the treasurer last year has been paid, and he has in hand a balance of £4. 18s. 9½d., after every claim on the institution has been discharged.

Some of the reports are out of print, and a wish has been expressed for a new catalogue; but the committee cannot recommend this without the mem-

bers will pledge themselves to take each a copy.

The institution is about to be removed to an elegant new building in Blackett-street, which the report properly designates the handsomest street in the town. This measure results from the very eligible terms granted to the institution by Mr Grainger, the builder. A subscription has been opened, and the committee have no doubt but the members "will be comfortably placed in the new building, without subtracting one farthing from the ordinary funds of the institution." We trust this praiseworthy and well-conducted institution will not be disappointed in this expectation. They deserve as much from the town and neighbourhood, and it is our sincere wish that the spirit of the public may advance what will prove so great a benefit to a society, whose prosperity and continued increase we have always had at heart.

A MOTHER AND HER CHILD.

A BUD just peeping, pillow'd in the arms
Of doating woman, woos an angel's sight,
And all the kisses and the kind alarms
That bring the slumber of a dreamless night.
The watchful mother, fearfully, but glad,
Leans o'er her sleeping infant's dawning charms,
And only prays her own, her peerless lad,
May safely shun the grasp of future harms.
She gently lays him in his lowly nest,
Hush'd as the limpid pool when twilight falls,
And sky-born hope becomes her welcome guest,
With ties elysian, all her mind enthrals—
She sees him man! the foremost and the best
Where starry honour or where science calls.

W. L. H.

MEMOIR OF THE LATE MR HENRY ATKINSON.

IN the death of Mr Henry Atkinson, the literary and scientific world have lately sustained the severe loss of an ardent promoter of useful knowledge, the rising generation of a most excellent and successful mathematical teacher, and society at large of an eminently excellent and valuable man.—And as our pages have frequently been enriched by the productions of his pen, we feel it our duty to present to our readers as full and complete a memoir of him as we have been able to collect.

Mr Henry Atkinson was born on the 29th June, 1781, at West Hartle, in

the county of Northumberland; and, having received the rudiments of education at the fireside of his father, Mr Cuthbert Atkinson, who was not at that time a schoolmaster, he was sent to a school in the neighbourhood, where, not making such progress as his parents knew that he was capable of, his father resolved upon commencing the business of a teacher himself, that his children might have the benefit of his instruction. Removing to Great Bavington, his son was soon able, at the early age of 13, to render him very valuable assistance. Some little time

[April,

afterwards, Mr Atkinson opened another school at West Woodburn, retaining also that at Bevington; he and his son attending the schools alternately, sometimes each for a week, sometimes for two or three weeks together. Henry was, even at this early period, a teacher of more than ordinary ability. He was then, as he continued to be through life, of a lively cheerful temper, very fond of dancing and of the usual amusements of a country life; but then, as always, under the strict controul of purity and innocence. He spent, too, a good deal of his leisure time in fishing; and in skill in this sport was equalled by very few. He was also thus led to cultivate a taste for the minuter branches of natural history, particularly of the transformations and habits of several insects, by which he was much distinguished.— After being about three years at Woodburn he removed to Belsay, and his father, we believe, to Berwick Hill, continuing their interchanges as before. After remaining in this situation for a few years Henry removed to Stamfordham, and his father succeeded him at Belsay. In the period between his leaving Woodburn and settling at Stamfordham, he had made great progress in the higher branches of mathematics, and at Stamfordham he was justly considered as one of the ablest teachers that had ever been known in that part of the country, and was at the same time honoured as a valuable member of society. He resided at Stamfordham till the year 1808, when, considering that in Newcastle there was a better field for the exercise of his talents, he removed thither at the age of 27. About this time he became a correspondent of the Ladies' Diary, and other scientific periodicals; and it is no disparagement to the other contributors to say, that Mr Atkinson's communications were usually distinguished.— Whatever subject he undertook to investigate he never quitted till it was exhausted; and he was four times rewarded with prizes for his communications. In Newcastle, his excellent method of teaching quickly raised him to a very high rank among the school-masters in this large and opulent town. In 1809, he became a member of the Literary and Philosophical Society of Newcastle, of which he was from the first one of the most distinguished ornaments. His first paper on "A new Method of extracting the Roots of

Equations of the higher Order," was communicated to the Society before his election. It was conceived and written at Stamfordham before his removal to Newcastle; and certainly whatever is original and valuable in it is all his own, though, perhaps, he might be mistaken in suspecting that some other eminent mathematicians who have since written on the subject had got the germs of their ideas from him. The date, however, of his paper sufficiently authenticates his own claims to originality. In 1810, he read an elaborate essay "on the Eclipses of Jupiter's Satellites, and on the Mode of determining the Longitude by their means;" for which he received the unanimous thanks of the Society. In 1811, he produced a very ingenious paper containing a Demonstration of two curious Properties of Square Numbers; which was honoured with the high approbation of Dr. Huston. The same year he read a paper "Demonstrating that no sensible Error can arise in the Theory of falling Bodies from assuming Gravity as an uniformly accelerating Force." Early in 1813, the Society was gratified by an elaborate essay on the Comet of 1811, and a model elucidating its path; and near the close of the same year he produced an essay on Propportion. In 1814, he further favoured the Society with an essay "on the Differences between the followers of Newton and Leibnits concerning the measure of Forces;" which arose from the perusal of a paper on forces in the Manchester Memoirs by P. Ewart, Esq.— And in 1815, an essay "on the Possibility, and, if possible, on the Consequences, of the Lunar origin of Meteoric Stones." In 1816, he entered on a new line of study, and produced an essay "on the Nature and Connection of Cause and Effect." At the anniversary following, he was most deservedly chosen a member of the committee; and continued to be re-elected every year till, at the anniversary of 1828, he declined being ballotted for on account of his ill health. In 1818, still pursuing metaphysical investigations, he produced "an Essay on Truth," which was the subject of conversation at two meetings. Of this production Dr. Gillies, the author of the History of Greece, speaks as "an excellent production, replete with able and accurate reasoning, conveyed with equal force and clearness of expression." (It was afterwards printed in the Newcastle

Magazine.) In 1819, he proposed "a new Mode of investigating Equations, which obtain among the Times, Distances, and Anomalies, of Comets moving around the Sun as their centre of Attraction in parabolic Orbits." In 1820, he gave another proof of the extensive range of his investigations in an essay "on the Effects produced on the different classes of Society by an Increase or Decrease of the prices of Corn." In 1824, he favoured the Society with two papers; one "on the Utility and probable Accuracy of the Method of determining the Sun's Parallax, by Observations on the planet Mars near his Opposition." (It was afterwards presented to the Astronomical Society of London, in whose Transactions it has since been published, vol. II, p. 27.) The other, "on the true Principles of calculating the Reflective Power of the Atmosphere." This was afterwards presented in a more enlarged and elaborate form to the Astronomical Society, and occupied the attention of that learned body during three sittings. On its appearance in their transactions, (vol. II, p. 137,) it was remarked upon by the editor of the Philosophical Magazine, (vol. LXV, p. 391, &c.) "The reasoning and deductions are founded on acknowledged facts, and hypothesis forms no part of the data from which the tables founded on these investigations are computed. Astronomical observations supply no portion of the materials which form the basis of the computations; but all the results are obtained by formulæ depending on optical principles; so that the near agreement of the quantities contained in those tables (when properly collected) with those given by the most approved modern tables of refraction, proves that the various formulæ by which these quantities were obtained, are founded in nature, as well as happily applied. The atmosphere is divided into a variety of strata, and each stratum has its appropriate formula for determining its share of mean refraction; and when the different portions belonging to the different strata are put together in succession, they constitute such an arrangement of quantities as proceed by a regular gradation, or nearly so; and nothing but a close examination of the difference can detect that the whole succession has not depended on one continued formula.—Besides the atmospheric refractions adopted as corrections for celestial ob-

servations, the author has applied one of his formulæ successfully to determine the terrestrial refraction, as it has reference to two objects standing in different elevations; so that whether this memoir be considered as a meteorological, geodetical, or astronomical communication, it cannot but be regarded as copious, elaborate, and interesting." A number of separate copies were printed and sent to several eminent scientific men; among the rest, at his own particular request, to the celebrated traveller Humboldt.

During the last two years of his life Mr Atkinson has been pursuing his enquiries on refraction, and it was his intention to send another paper to the Astronomical Society of London as a continuation of his former one; but it is much to be regretted that the bad state of his health during the greater part of that time has prevented him from bringing his investigations to a close. Enough, it is hoped, has been done to enable some of his friends to finish what he has so ably commenced on this very interesting and important subject.

In the mean time it will be gratifying to his surviving friends to know that Mr Gompertz, one of the most accomplished mathematicians in England, proposed, a few weeks ago, that the Society's medal should be awarded to Mr Atkinson for his former most elaborate paper; and, had he lived, there is no doubt that this honour would have been conferred upon him.

To return to the Literary and Philosophical Society of Newcastle, and his connexion with it. The two meetings in 1826 were engaged in hearing a long and curious paper on suspension bridges, and on the possibility of the proposed bridge from North to South Shields. That part of it which related to the strength and elasticity of iron was afterwards read to the Literary, Scientific and Mechanical Institution, of which also he was a member. In 1827, he delivered a course of lectures on Astronomy, to a numerous audience, in the Literary Society's lecture room; and these closed his public labours for the promotion of science.—It is proper, however, in this place, to state that Mr Atkinson always considered, as a circumstance particularly favourable to his advancement in mathematical science, his removal to Newcastle and the opportunity which he enjoyed, as a member of the Literary

Society, of having recourse to a Library particularly valuable in this department. That he amply repaid any obligations which might be due in this respect, has been already sufficiently shewn.

But Mr Atkinson's claims to high esteem and respect are by no means confined to his literary and scientific attainments. We might say with Gilbert Wakefield on a valuable friend of his,* "Art thou looking, reader, like Aesop in the fable, for a man? Dost thou want an intrepid spirit in the caverns of truth and virtue?" An undeviating rectitude of conduct, an inflexible integrity, and a fortitude of mind in following the dictates of his own judgment, entitling him to the esteem, respect, and friendship of those whose views on many subjects might differ essentially from his: one who, in private life, exhibited the most exemplary propriety; and whose purity of moral feeling was at all times remarkable, but especially in those hours of social recreation, when his conversation was never chargeable with an unbecoming sentiment or expression, or with countenancing any thing of the kind in others; whose heart was always open to the calls of benevolence; and who, in every relation, as a son, a nephew, a husband, a parent, a friend, and a member of general society, at once dis-

played the amiableness of the man, and exemplified the duties of the Christian. "Our experience can assure thee that thy pursuit may cease, thy doubts be banished, and thy hope be realized, for this is the man!"

"Who, now, will stay to compute the deductions to be made from this sum of excellence," for a little pertinacity in debate on questions of comparatively little moment, proceeding from a love of truth, and devoid of all malignity; which was, therefore, gratifying to those who fully entered into the principle on which it was grounded, though sometimes rather amusing, when the absolute importance of the question in debate was taken into the account?— "We have made the computation, and it amounts to an *infinitesimal* of the lowest order."

Mr Atkinson married, in 1802, Isabella, sister of Mr Edward Riddle, the eminent master of the Naval Mathematical School, at Greenwich. She has acted towards him the part of an affectionate and faithful wife; and, during the last two years, a most attentive nurse. She is left with three children, who, it is hoped, will benefit by the publication of a selection from his valuable papers. For it cannot be doubted that, if the office of editor be undertaken by his distinguished brother-in-law above mentioned, under the patronage of the societies with whom he was connected, they will be favourably received by the scientific world.

* The late Rev. Geo. Walker, F. R. S., a native of this town. See his Life, 1st ed., p. 213.

THE ADDRESS OF THE CAST OF MILO,

On the Motion for his Banishment from the Library of the Lit. and Phil. Soc. having been negatived.

“If thou were chaste as ice and pure as snow thou abat not escape calumny.”

SHAKESPEARE.

“TWAS Saturday, past ten at night,
When parting from his books,
John Hudson tripped with lighter step,
And eke serener took.

In trouble, then, the mighty cast
Of him who rent the oak
Addressing all his brother busts
The solemn silence broke.

“I thank the skill and plastic art
Of my ingenious master
Who formed me, noble as I am,
From common Paris plaster.”



